- 14 -

C L A I M S

1. A process for operating a compression ignition
internal combustion engine in combination with a
catalytic partial oxidation reformer and, optionally, an
exhaust gas aftertreater, wherein:
(a) a mixture of a first fuel and air, wherein the first
fuel comprises Fischer-Tropsch derived fuel, is
introduced in the combustion chamber of the engine;
(b) exhaust gas is discharged from the engine and
optionally partly recirculated to the combustion chamber
of the engine;
(c) a second fuel and oxygen and/or steam are supplied
to the catalytic partial oxidation reformer to produce
synthesis gas, wherein the second fuel comprises Fischer-
Tropsch derived fuel;
(d) at least part of the synthesis gas is supplied to:
(i) the exhaust gas aftertreater;
(ii) the combustion chamber of the engine; or to both.
2. A process according to claim 1, wherein the first
fuel and the second fuel are the same fuel.
3. A process according to claim 1 or 2, wherein the
first fuel and the second fuel comprise at least
10% (v/v) Fischer-Tropsch derived fuel, preferably at
least 50% (v/v), more preferably at least 80% (v/v), even
more preferably consist of Fischer-Tropsch derived fuel.
4. A process according to any one of the preceding
claims, wherein the Fischer-Tropsch derived fuel is a
gasoil.
5. A process according to any one of the preceding
claims, which is a process for operating a compression

- 15 -

ignition internal combustion engine in combination with a catalytic partial oxidation reformer and a NO_x abatement system as exhaust gas aftertreater, wherein the non-recirculated part of the exhaust gas and at least part of the synthesis gas are supplied to the NO_x abatement system.

6. A process according to claim 5, wherein the NO_x abatement system comprises a NO_x trap comprising a NO_x reducing catalyst and a NO_x sorbent.

7. A process according to claim 6, wherein the non-recirculated part of the exhaust gas is continuously supplied to the NO_x trap and the synthesis gas is intermittently supplied to the NO_x trap.

8. A process according to claim 6, wherein the NO_x abatement system comprises two NO_x traps and wherein each trap is alternately supplied with the non-recirculated part of the exhaust gas and the synthesis gas such that one trap is supplied with the exhaust gas and the other trap with the synthesis gas.

9. A process according to claim 5, wherein the NO_x abatement system comprises a NO_x reducing catalyst without a NO_x sorbent and the non-recirculated part of the exhaust gas and the synthesis gas are simultaneously and continuously supplied to the NO_x reducing catalyst.

10. A process according to any one of the preceding claims, wherein at least part of the synthesis gas is supplied to the combustion chamber of the engine.

11. A process according to any one of the preceding claims, wherein at least part of the exhaust gas is recirculated to the combustion chamber of the engine.

12. A process according to claim 10, wherein the amount of synthesis gas supplied to the combustion chamber of

- 16 -

the engine is such that the volumetric ratio of
'synthesis gas'-to-'first fuel' supplied to the
combustion chamber is at most 25%, preferably at most
20%.

13. A process according to claim 10 and 11, wherein the
amount of synthesis gas supplied to the combustion
chamber and the amount of exhaust gas recirculated to the
combustion chamber is such that the volumetric ratio of
'combined synthesis gas plus exhaust gas' to 'first fuel'
supplied to the combustion chamber is at most 25%.

14. A process according to any one of the preceding
claims, wherein part of the synthesis gas is supplied to
a fuel cell to generate electricity, preferably a solid
oxide fuel cell.